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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *03 March 2008*.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,6,9-13,17,18,21-25 and 28-35* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1,6,9-13,17,18,21-25 and 28-35* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a) ☐ All   b) ☐ Some * c) ☐ None of:
         1. ☐ Certified copies of the priority documents have been received.
         2. ☐ Certified copies of the priority documents have been received in Application No. _____.
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

DETAILED ACTION

This office action is responsive to the Request for Continuation (RCE) filed on

March 3, 2008. Claims 1, 6, 13, 17, 18, 25, 28, 33 and 34 are presently amended, and

claims 2-5, 7, 8, 14-16, 19, 20, 26, and 27 are canceled. Therefore, claims 1, 6, 9-13,

17, 18, 21-25 and 28-35 remain pending in this application.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 25 and 33-35 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yamamoto (US Patent Application Publication 2002/0152339 A1) in

view of McGovern et al. (US Patent Application Publication 2005/0097260 A1)

('McGovern').

With respect to claim 1, Yamamoto teaches a system for protecting data on a

physical volume at the file system level and permitting access to the data at the physical

volume level comprising:

a first interface for file level input/output (I/O) (paragraph 18 lines 1-5);

a second interface for block level I/O (paragraph 18 lines 1-4);

a plurality of physical volumes upon which file systems are represented

(paragraphs 7-8, paragraphs 43-44);

a first controller which processes file level I/O requests (paragraph 7 lines 4-7

and 13-16); and

a second controller which processes block level I/O requests (paragraph 7 lines

4-5 and 13-16),

wherein, in response to a file system protect request directed to a particular file

system, the particular file system is protected for a specified period of time and a

physical volume of the particular file system is also protected for the specified period of

time (paragraph 6, paragraph 7 lines 13-16, paragraph 35, paragraph 39), and

wherein once the particular file system is protected, write requests to the

particular file system or physical volume of the particular file system via either the first or

second controller are not permitted until expiration of the specified period of time

(paragraphs 35, 39 and 47),

wherein information regarding whether or not the particular file system is

protected is stored in a volume status table having a plurality of entries which indicate

statuses of the particular file system (Figures 5 and 6, paragraphs 43, 45 and 47).

Although Yamamoto uses the term a controller element, it is clear that there are

two separate controller elements being used, one for file level and one for block level.

For example, he states in paragraph 7 that the controller elements includes at least a

SCSI interface for block type read/write requests and a file system interface for file level

read/write requests. This interpretation is upheld throughout this office action wherever

Although it is inherent that if a file system or physical volume is protected at all,

then it is protected for a specified period of time, Yamamoto does not explicitly recite a

protect request directed to a file system with a specified period of time, nor does he

teach wherein said entries include a first status indicating a retention period for the

particular file system, the retention period indicating how long data in the particular file

system should remain unchanged and thereby determining when data can next be

written to the particular file system.

McGovern teaches a system and method for record retention date in a write once

read many storage system (see abstract), in which he teaches a protect request

directed to a file system with a specified period of time (paragraphs 21, paragraph 120

lines 19-33, paragraph 121); and a retention period for the particular file system, the

retention period indicating how long data in the particular file system should remain

unchanged and thereby determining when data can next be written to the particular file

system (paragraphs 20-21) (*McGovern teaches that each volume is associated with its*

own file system, and that for the purposes of his invention, the terms volume and file

system are synonymous (paragraphs 8 and 50). Therefore, McGovern's WORM-

protected volumes may also be considered WORM-protected file systems).

It would have been obvious to a person having ordinary skill in the art at the time

the invention was made to have modified Yamamoto by the teaching of McGovern

because a protect request directed to a file system with a specified period of time and

wherein said entries include a first status indicating a retention period for the particular

file system, the retention period indicating how long data in the particular file system

should remain unchanged and thereby determining when data can next be written to the

particular file system would enable a method for setting retention dates, which in turn

locks volumes against modification and/or deletion (McGovern, abstract).

With respect to claim 25, Yamamoto as modified teaches a storage system for

protecting data on a physical volume at the file system level and permitting access to

the data at the physical volume level comprising:

a first interface for file level input/output (I/O) (Yamamoto, paragraph 18 lines 1-

5);

a second interface for block level I/O (Yamamoto, paragraph 18 lines 1-4);

a plurality of physical volumes upon which file systems are represented

(Yamamoto, paragraphs 7 and 8, paragraphs 43-44);

a first controller which processes file level I/O requests (Yamamoto, paragraph 7

lines 4-7 and 13-16); and

a second controller which processes block level I/O requests (Yamamoto,

paragraph 7 lines 4-5 and 13-16),

wherein, in response to a file system protect request directed to a particular file

system with a specified period of time (McGovern, paragraphs 21 and 121), the

particular file system is protected for the specified period of time and a physical volume

of the particular file system is also protected for the specified period of time (Yamamoto,

paragraph 6, paragraph 7 lines 13-16, paragraph 35, paragraph 39),

wherein once the particular file system is protected, write requests to the

particular file system or physical volume of the particular file system via either the first or

second controller are not permitted until expiration of the specified period of time

(Yamamoto, paragraphs 35, 39 and 47),

wherein information regarding whether or not the particular file system is

protected is stored in a volume status table having a plurality of entries which indicate

statuses of the particular file system (Yamamoto, Figures 5 and 6, paragraphs 43, 45

and 47), and

wherein said entries include a first status indicating a retention period for the

particular file system, the retention period indicating how long data in the particular file

system should remain unchanged and thereby determining when data can next be

written to the particular file system (McGovern, paragraphs 20-21).

With respect to claim 33, Yamamoto as modified teaches a storage system for

handling input/output (I/O) requests from a plurality of servers, wherein a first server of

the servers sends file I/O requests and a second server of the servers sends block I/O

requests, comprising:

a storage media including a plurality of volumes (Yamamoto, paragraph 7 lines 1-

2) storing data of file systems (Yamamoto, paragraph 8 lines 1-2);

a first controller, to be coupled to the first server, conducting I/O operations in

response to the file I/O requests (Yamamoto, paragraph 7);

a second controller, coupled to the storage media, to be coupled to the second

server, conducting I/O operations in response to the block I/O requests (Yamamoto,

paragraph 7); and

wherein at least one file system of the file systems is set to be write-protected

from the second controller when the first controller received a request from the first

server to protect said at least one file system in the storage media for a specified period

of time (Yamamoto, paragraphs 35-39 and 47; McGovern, paragraphs 21 and 121),

wherein information regarding whether or not said at least one file system is

protected is stored in a volume status table having a plurality of entries which indicate

statuses of said at least one file system (Yamamoto, Figures 5 and 6, paragraphs 43,

45 and 47), and

wherein said entries include a first status indicating a retention period of said at

least one file system, the retention period indicating how long data in said at least one

file system should remain unchanged and thereby determining when data can next be

written to said at least one file system (McGovern, paragraphs 20-21).

With respect to claim 34, Yamamoto as modified teaches wherein said first and

second controllers share protection information (Yamamoto, paragraph 7 lines 13-16)

including status of protection (Yamamoto, paragraph 47) and a retention period for each

of the file systems which is set by the first controller (McGovern, paragraphs 20-21).

With respect to claim 35, Yamamoto as modified teaches wherein the first controller receives the file I/O requests via a first interface and the second controller receives the block I/O requests via a second interface (Yamamoto, paragraphs 7 and 18).

3.   Claims 6 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US Patent Application Publication 2002/0152339 A1) in view of McGovern et al. (US Patent Application Publication 2005/0097260 A1) ('McGovern'), as applied to claims 1, 2, 25 and 33-35 above, and further in view of Brewer et al. (US Patent 6,336,163 B1) ('Brewer').

With respect to claims 6 and 28, Yamamoto as modified teaches claims 1 and 25 and entries indicating a status of a volume and/or file system.

Yamamoto as modified does not teach wherein said entries indicate a second status defining whether the file system is exported or un-exported.

Brewer teaches a method and article of manufacture for inserting volumes for import into a virtual tape server (see abstract), in which he teaches wherein said entries indicate a second status of each volume defining whether the volume is exported or un-exported (Brewer, column 2 lines 56-60, column 6 lines 24-26).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have further modified Yamamoto by the teaching of Brewer because wherein said entries indicate a second status of each volume defining whether

the volume is exported or un-exported would enable a more detailed tracking of all types of volumes, not just file systems, which would add functionality to Yamamoto's storage system (Brewer, column 6 lines 1-3).

4.   Claims 9-12 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US Patent Application Publication 2002/0152339 A1) in view of McGovern et al. (US Patent Application Publication 2005/0097260 A1) ('McGovern'), as applied to claims 1, 2, 25 and 33-35 above, and further in view of Achiwa et al. (US Patent Application Publication 2003/0009438 A1) ('Achiwa').

        With respect to claims 9 and 29, Yamamoto as modified teaches claims 1 and 25.

        Yamamoto as modified does not teach wherein said first controller is a network attached storage controller which processes file level I/O requests.

        Achiwa teaches a method for file level remote copy of a storage device (see abstract) in which he teaches wherein said first controller is a network attached storage controller which processes file level I/O requests (paragraph 38).

        It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have further modified Yamamoto by the teaching of Achiwa because wherein said first controller is a network attached storage controller which processes file level I/O requests would enable processing of file or directory level access requests (Achiwa, paragraph 8).

With respect to claims 10 and 30, Yamamoto as modified teaches wherein said

second controller is a disk controller which processes block level I/O requests (Achiwa,

paragraph 93).

With respect to claims 11 and 31, Yamamoto as modified teaches wherein said

first interface is an Ethernet interface which processes file level I/O requests (Achiwa,

paragraph 96).

With respect to claims 12 and 32, Yamamoto as modified teaches wherein said

second interface is a Fibre Channel interface which processes block level I/O requests

(Achiwa, paragraph 93, paragraph 98).

5.   Claims 13, 14, 17 and 24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hoogterp (US Patent Application Publication 2005/0210218 A1) in

view of Yamamoto (US Patent Application Publication 2002/0152339 A1), and further in

view of McGovern et al. (US Patent Application Publication 2005/0097260 A1)

('McGovern').

With respect to claim 13, Hoogterp teaches a storage system for protecting data

on a physical volume at the file system level and permitting access to the data at the

physical volume level comprising:

a network attached storage (NAS) gateway (Figure 4, paragraphs 27 and 52);
and

a storage system which is connected to said NAS gateway (Figure 4, paragraphs
52 and 55),

wherein said NAS gateway comprises:

a first interface for file level I/O (element 168 in Figure 4, paragraph 52);

a third interface for block level I/O (element 169 in Figure 4, paragraphs
52-54), and

a first controller which processes file level I/O requests (paragraph 56);

wherein said storage system comprises:

a second interface for block level I/O, said second interface being
connected to said third interface (paragraph 34),

a plurality of physical volumes upon which file systems are represented
(paragraphs 58 and 62);

a second controller which processes block level I/O requests (paragraph
34); and

wherein once a particular logical volume is protected, write requests to the
particular logical volume or physical volume of the particular logical volume via either
the first or second controller are not permitted until expiration of the specified period of
time (paragraph 150).

Hoogterp does not explicitly teach wherein, in response to a file system protect
request directed to a particular file system with a specified period of time, the particular

file system is protected for the specified period of time and a physical volume of the

particular file system is also protected for the specified period of time; or wherein once a

particular file system is protected, write requests to the particular file system or physical

volume of the particular file system via either the first or second controller are not

permitted until expiration of the specified period of time.

Yamamoto teaches a direct access storage system with combined block

interface and file interface access (see abstract), in which he teaches:

a first interface for file level input/output (I/O) (paragraph 18 lines 1-5);

a second interface for block level I/O (paragraph 18 lines 1-4);

a plurality of physical volumes upon which file systems are represented

(paragraphs 7-8, paragraphs 43-44);

a first controller which processes file level I/O requests (paragraph 7 lines 4-7

and 13-16); and

a second controller which processes block level I/O requests (paragraph 7 lines

4-5 and 13-16),

wherein, in response to a file system protect request directed to a particular file

system, the particular file system is protected for a specified period of time and a

physical volume of the particular file system is also protected for the specified period of

time (paragraph 6, paragraph 7 lines 13-16, paragraph 35, paragraph 39), and

wherein once the particular file system is protected, write requests to the

particular file system or physical volume of the particular file system via either the first or

second controller are not permitted until expiration of the specified period of time

(paragraphs 35, 39 and 47),

wherein information regarding whether or not the particular file system is

protected is stored in a volume status table having a plurality of entries which indicate

statuses of the particular file system (Figures 5 and 6, paragraphs 43, 45 and 47).

It would have been obvious to a person having ordinary skill in the art at the time

the invention was made to have modified Hoogterp by the teaching of Yamamoto

because wherein said first and second controllers share protection information for said

logical and physical volumes would enable a storage system with direct access storage

devices that could be shared between a block interface and a file interface (Yamamoto,

paragraph 6).

Further regarding claim 13, the combination of Hoogterp and Yamamoto does

not teach a protect request directed to a file system with a specified period of time or

wherein said entries include a first status indicating a retention period for the particular

file system, the retention period indicating how long data in the particular file system

should remain unchanged and thereby determining when data can next be written to the

particular file system.

McGovern teaches a system and method for record retention date in a write once

read many storage system (see abstract), in which he teaches a protect request

directed to a file system with a specified period of time (paragraphs 21, 120 and 121);

and a retention period for the particular file system, the retention period indicating how

long data in the particular file system should remain unchanged and thereby

determining when data can next be written to the particular file system (paragraphs 20-

21).

It would have been obvious to a person having ordinary skill in the art at the time

the invention was made to have further modified Hoogterp by the teaching of McGovern

because a protect request directed to a file system with a specified period of time and

wherein said entries include a first status indicating a retention period for the particular

file system, the retention period indicating how long data in the particular file system

should remain unchanged and thereby determining when data can next be written to the

particular file system would enable a method for setting retention dates, which in turn

locks volumes against modification and/or deletion (McGovern, abstract).

With respect to claim 17, Hoogterp as modified teaches wherein said entries

indicate a second status of each file system defining whether the file system is

protected or unprotected (Yamamoto, paragraph 47).

With respect to claim 24, Hoogterp as modified teaches wherein said second

interface is a Fibre Channel interface which processes block level I/O requests

(Hoogterp, paragraph 34).

6.   Claims 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hoogterp (US Patent Application Publication 2005/0210218 A1) in view of Yamamoto

(US Patent Application Publication 2002/0152339 A1) and McGovern et al. (US Patent

Application Publication 2005/0097260 A1) ('McGovern'), as applied to claims 13, 14, 17

and 24 above, and further in view of Brewer et al. (US Patent 6,336,163 B1) ('Brewer').

With respect to claim 18, Hoogterp as modified teaches claim 13.

Hoogterp as modified does not teach a second status of each file system defining

whether the file system is exported or un-exported (Brewer, column 2 lines 56-60,

column 6 lines 24-26).

Brewer teaches a method and article of manufacture for inserting volumes for

import into a virtual tape server (see abstract), in which he teaches wherein said entries

indicate a second status of each volume defining whether the volume is exported or un-

exported (Brewer, column 2 lines 56-60, column 6 lines 24-26).

It would have been obvious to a person having ordinary skill in the art at the time

the invention was made to have further modified Hoogterp by the teaching of Brewer

because a second status of each volume defining whether the file system is exported or

un-exported would enable a more detailed tracking of all types of volumes, not just file

systems, which would add functionality to Hoogterp's system (Brewer, column 6 lines 1-

3).

7.   Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hoogterp (US Patent Application Publication 2005/0210218 A1) in view of Yamamoto

(US Patent Application Publication 2002/0152339 A1) and McGovern et al. (US Patent

Application Publication 2005/0097260 A1) ('McGovern'), as applied to claims 13, 14, 17

and 24 above, and further in view of Achiwa et al. (US Patent Application Publication

2003/0009438 A1) ('Achiwa').

With respect to claim 21, Hoogterp as modified teaches claim 13.

Hoogterp as modified does not teach wherein said first controller is a network

attached storage controller which processes file level I/O requests.

Achiwa teaches a method for file level remote copy of a storage device (see

abstract) in which he teaches wherein said first controller is a network attached storage

controller which processes file level I/O requests (paragraph 38).

It would have been obvious to a person having ordinary skill in the art at the time

the invention was made to have further modified Hoogterp by the teaching of Achiwa

because wherein said first controller is a network attached storage controller which

processes file level I/O requests would enable processing of file or directory level

access requests (Achiwa, paragraph 8).

With respect to claim 22, Hoogterp as modified teaches wherein said second

controller is a disk controller network attached storage controller which processes block

level I/O requests (Achiwa, paragraph 93).

With respect to claim 23, Hoogterp as modified teaches wherein said first interface is an Ethernet interface which processes file level I/O requests (Achiwa, paragraph 96).

Response to Arguments

8.   Applicant's arguments filed March 3, 2008 have been fully considered but they are not persuasive.

9.   Applicant argues that McGovern does not disclose protecting a file system for a specified period of time using a file system protect request as presently claimed. Examiner disagrees. McGovern teaches that each volume is associated with its own file system and that for the purpose of his invention, volumes and file systems are synonymous (paragraphs 8 and 50). He further teaches that in "strict or regulatory" WORM volumes, certain rules may apply. For example, he teaches that the above type of WORM volumes are subject to strict minimum retention periods or infinite retention periods wherein no modification or deletion of **files** is permitted (paragraphs 21 and 121). McGovern also teaches that administrators may flexibly set retention dates for certain volumes (paragraph 20). Therefore, under the regulatory WORM volumes taught by McGovern, file system protect requests with specified periods of time are present, in which the entire volume (all files) are protected for the specified time period. Because each volume is associated with a file system, it is clear that McGovern does in fact teach protecting a file system for a specified period of time using a file system protect request.

10.   In the above example, the file system protect request is specific to certain types

of WORM volumes. For example, all "strict or regulatory" WORM volumes may be

subject to file system protect request because these WORM volumes are subject to

certain rules and strict retention periods. The rules include a request to protect the

"strict or regulatory" WORM volumes by setting minimum retention periods, and thus in

response to the file system protect request, the WORM volumes are protected for a

specified period of time.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Alicia M. Lewis whose telephone number is 571-272-

5599. The examiner can normally be reached on Monday - Friday, 9 - 6:30, alternate

Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Charles Rones can be reached on 571-272-4085. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alicia M Lewis/
Examiner, Art Unit 2164
May 28, 2008

/Charles Rones/

Supervisory Patent Examiner, Art Unit 2164